

ABSTRACT

A method of making an at least one hole in an optically transparent body comprises the following steps: (i) providing an ultrashort pulse laser for producing a laser output with a wavelength λ , the laser output having a subpicosecond laser pulse duration; (ii) providing a laser output focusing lens for focusing the laser output, the focusing lens having a numerical aperture NA; (iii) providing an optically transparent body, the optically transparent body having a transparency at λ of at least 90%/cm; (iv) providing a liquid filled container situated proximate to the optically transparent body, such that the optically transparent body is in direct contact with the liquid; and (v) directing the laser output through the focusing lens to produce a focused laser output with a subpicosecond laser pulse duration proximate the optically transparent body, wherein the focused laser output traces at least one hole track pattern through the transparent glass body while the optically transparent body and said focused laser output move relative to one another in X-Y-Z directions. The at least one hole track pattern is in contact with the liquid and the focused laser output, in conjunction with the liquid, creates at least one hole in the optically transparent body.